Fast Track Troubleshooting

Model: WW22K6800

IMPORTANT SAFETY NOTICE – "For Technicians Only" This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible, nor assume any liability for injury or damage of any kind arising from the use of this data sheet.

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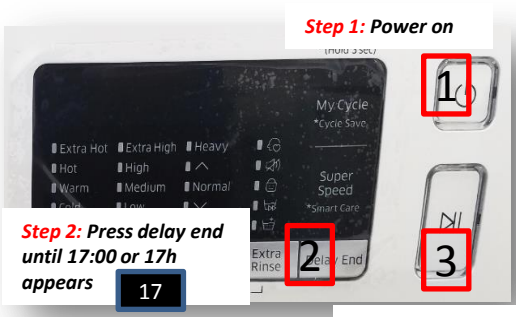
Support Information:
HELP: 1-888-751-4086 (Tech Sup. – ASC/SSD) - 1-866-894-0637 (Tech Sup. - FE/ME)
GSPN: http://gspn3.samsungcsportal.com/main.jsp
E-Learning: samsungasc.earlyconnect.com
MCP & E-Learning Support: **1-800-749-9421 – e-learning@sea.samsung.com**

Smart install mode

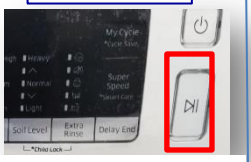
How to Enter



Step 3: Hold down - Start/Pause until AS appears

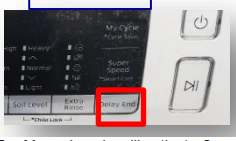
AS

Automatic



A. Automatic mode will activate all component checks automatically and take approx 3 mins to complete.

Manual



B. Manual mode will activate One function at a time with the press of the Delay End button, this mode is recommended when troubleshooting for specific component failure.

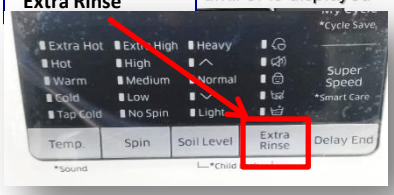
Component - Check Chart

Sub Mode	Description
1	Check door lock test
2	Check drain pump operation test
3	Check Prewash valve operation test
Co	Check cold water valve operation test
Ho	Check hot water valve operation test
6	Check wash heater operation test Check rinse operation test
7	Check drain pump operation test
8	Check spin operation test
9	Not Used
10	Check door unlock test
Ot(OK)	Smart Install automatic mode. Everything OK

Diagnostic -Check for Errors

Step 1

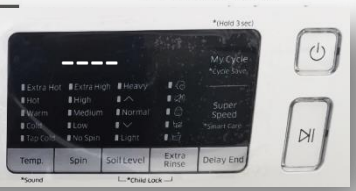
In Smart install mode – press the button on the bottom until Cr is displayed



Step 2

Turn the Jog Dial clockwise

If there is an error, it will display ---- means no error.



Quick Test Mode

Warning Test Mode will delete any stored error code from the history.

Unlock test mode;

- **Press Power + Soil Level + Delay end at the same time for 5 seconds until 02 displays.**
- **Turn off the unit after 02 displays**

Enter Test Mode;

- **With Power off, press Power + extra rinse + delay end at the same time for 5 sec until all LEDs turn on.**
- **Turn the Jog dial to access different modes.**

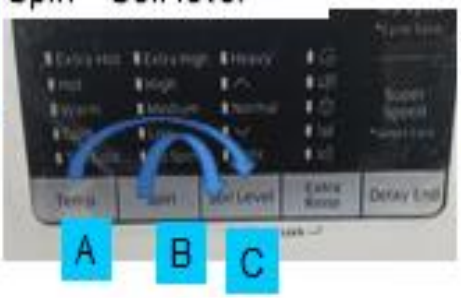
TEST	FUNCTION Check	Turn Jog Dial
1	Software	Normal
2	Water Pressure	Heavy Duty
3	Temp Celsius	Sanitize
4	*Pulsator test*	Perm Press
5	*Spin test*	Delicates

TEST	FUNCTION test	PRESS Button
1	Water Valve Test	TEMP
2	Door Lock	SPIN
3	Drain Pumps	Soil Level * Door lock must be active *
4	*Heater Relay*	Extra Rinse

Data Display mode

Step 1
Power ON

Step 2
Press A – C – B – C
Temp – Soil level
Spin – Soil level



Step 3
Turn Jog dial to move to different tests and wait 2 seconds to enter test

Data ID	Remark
1	Main MICOM Version
6	Last Error Code
7	Water Level
8	Water Temperature
18	RPM Check

Data display mode will allow you to view Micom version, Last Error recorded, Water Level pressure, and water temperature

Troubleshooting Errors *1C , 5C *

1C Error - Water Level Pressure Sensor

Check Point Water level sensor/Water level sensor terminal

Causes

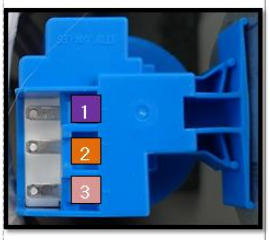
① Water Level Pressure Sensor
② Sensor not connected properly
③ Main PCB
④ Harness

Step 1

① Check the water level sensor terminal connections and contacts

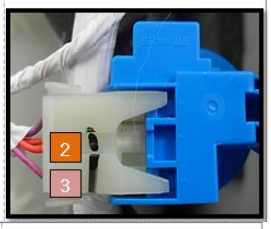
② Check for torn or damaged wiring to pressure sensor

③ With pressure sensor connector removed, measure resistance of pressure sensor terminals
→ Pin 1 and 2 - open
→ Pin 1 and 3 - approx. 21 Ω
→ Pin 2 and 3 - open



Step 2

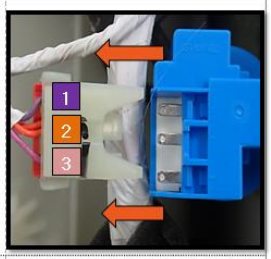
① Reinstall pressure sensor connector and check the frequency of the water level sensor with the washer on and the tub empty (no water)
→ Pin 1 and 2 - approx. 25.2KHz
→ Pin 2 and 3 - approx. 25.2KHz



Step 3

① Remove Sensor connector, turn on the washer and measure DC voltage on the connector
→ Pin 1 and 2 - approx. 2.3VDC
→ Pin 2 and 3 - approx. 5VDC

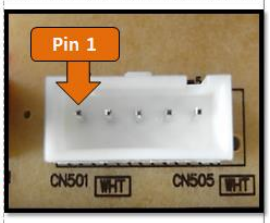
② If a voltage is missing or is out of range follow **step 4**



Step 4

① Remove connector CN501 from the Sub PCB and measure the water level sensor voltage supply at the Sub PCB
→ Pin 2 and 3 - approx. 5VDC
→ Pin 2 and 4 - approx. 2.3 VDC
→ Replace Sub PCB if missing or out of range

② If the voltage is present at Sub PCB and missing or out of range at sensor terminal connector
→ Replace sensor harness



5C Error - Drain Error

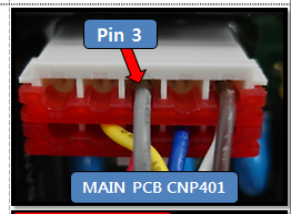
Check Point Drain Pump/Foreign material in Drain Pump/Frozen During Winter

Causes

① Foreign materials in drain pump
② Drain hose bent or kinked
③ Drain pump defective
④ Main PCB fault
⑤ Pressure sensor hose

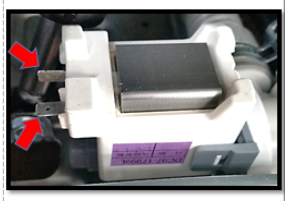
Step 2

① Place meter lead on pin 3 of CNP401(gray) and other lead on Relay RY101 (blue wire) and check resistance of the drain pump
→ Approx. 13.5Ω~16.5Ω
→ If missing or out of range, measure at drain terminals



② While in drain mode measure the voltage output to the drain pump
→ CNP401 pin 3 (gray) - RY101 (blue wire) - 120 VAC
→ Replace Main PCB if missing or out of range

③ Check resistance across the terminals of the drain pump.
→ Approx. 13.5Ω~16.5Ω
→ Replace drain pump if out of range
→ If is present at the board and missing at the drain pump, replace wire harness



5C Error - Drain Error

Check Point Drain Pump/Foreign material in Drain Pump/Frozen During Winter

Causes

① Foreign materials in drain pump
② Drain hose bent or kinked
③ Drain pump defective
④ Main PCB fault
⑤ Pressure sensor hose

① Visually inspect every inch of the pressure sensor hose for any damage or small holes.
→ Hose could have a very small hole and might be hard to notice unless you do a thorough inspection
→ Replace pressure sensor hose if damaged

② Check to make sure terminal is properly connected to the water level sensor

Troubleshooting Errors *3C / AC *

3C Error - Wash Motor Error

Check Point Wash Motor/Harness

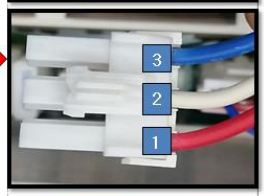
Causes

① Bad connections to the motor
② Faulty Wash Motor
③ Main PCB defective

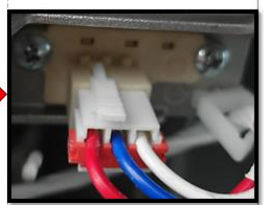
Step 1

① Make sure the motor connector is properly seated on the Main PCB connector CNS901

② Remove motor connector from CNS901 and measure resistance across motor connector
→ Pin 1 and 2 - approx. 5Ω
→ Pin 2 and 3 - approx. 5Ω
→ Pin 1 and 3 - approx. 5Ω
→ Follow next step if reading is out of range

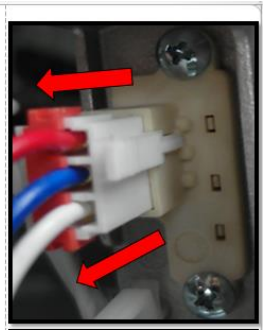


③ Make sure motor connector is properly seated at the motor



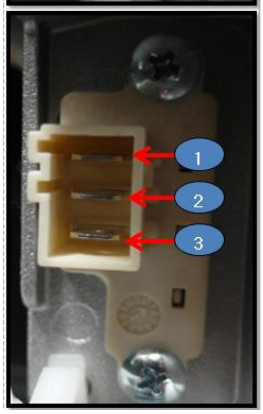
Step 2

① Remove connector from the motor



②

② Measure resistance at the motor
→ Pin 1 and 2 - approx. 5Ω
→ Pin 2 and 3 - approx. 5Ω
→ Pin 1 and 3 - approx. 5Ω
→ Replace motor if out of range
→ Replace harness if reading is normal at motor and abnormal at the Main PCB connector



Step 3

① Check motor to see if any foreign object is restricting it from turning smoothly.

② Visually check if the drive belt is broken

③ Overloading unit with too much laundry can cause restriction to the motor causing a 3C error.

AC Error - Communication Error

Check Point Main PCB/Sub PCB/Wire harness

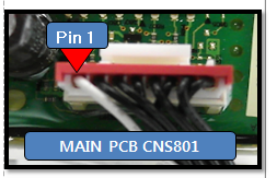
Causes

① The signals between the Sub and Main PCB are not sensed
② Misconnection between the Sub and Main PCB

Step 1

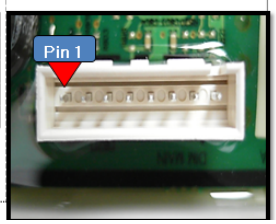
① Check the wire connections and terminal contacts between the sub and Main PCB

② Visually inspect the Sub PCB for moisture or water damage
→ Spilled detergent on the control panel can cause damage to the board causing communication errors



③ Check the voltage output from the Main PCB to the Sub PCB at connector CNS801
→ Pin 4 and 5 - 5VDC
→ Pin 5 and 6 - 12VDC
→ Replace Main PCB if out of range

▶ CNS801	
1. TXD TO SUB	5. GND
2. RXD FROM SUB	6. 12V
3. RESET TO SUB	7. WATER LEVEL FROM MAIN
4. 5V	8. STANDBY POWER FROM SUB



Troubleshooting Errors *4C*

4C Error - Water Supply Error

Check Point Water Supply Valve/Main PCB/Frozen During Winter

Causes

① Damaged harness
② Water supply valve fault
③ Frozen water supply during winter
④ Pressure sensor hose
⑤ Main PCB

Step 1

① Check for any physically damaged valves

② Look for any clogged valves.
→ Water calcification can cause restriction on water flow

③ A 3C error code can be caused by a flood safe water supply line previously installed.
→ Flood safe water hose can sometimes shut off the water supply even if there is not a leak

④ Frozen Valve during extreme cold weather conditions.
→ During extreme cold weather conditions, valves can freeze causing restriction to water flow
→ Advise customer to have unit installed at an appropriate location or this can cause valves to crack and leak when temperature rises and ice melts on the valve

Causes

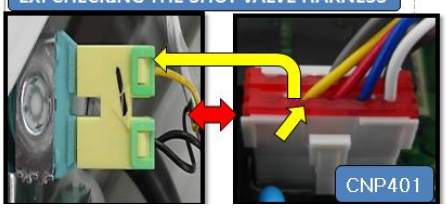
① Damaged harness
② Water supply valve fault
③ Frozen water supply during winter
④ Pressure sensor hose
⑤ Main PCB

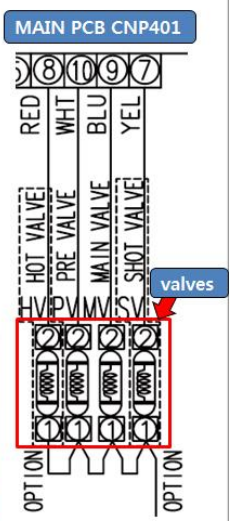
Step 2

① Visually inspect water valve harness for damaged or torn wire
→ Repair or replace harness if damaged

② On the Main PCB connector CNP401, locate the wire belonging to the valve you want to check and measure continuity
→ Continuity or less than 5Ω
→ Repair or replace harness if no continuity

EX. CHECKING THE SHOT VALVE HARNESS





4C Error - Water Supply Error

Check Point Water Supply Valve/Main PCB/Frozen During Winter

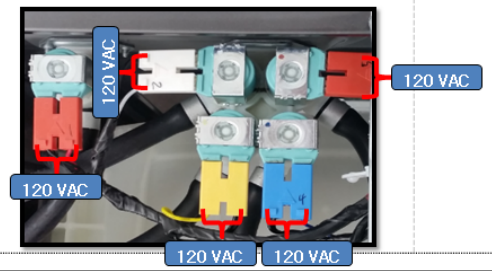
Causes

① Damaged harness
② Water supply valve fault
③ Frozen water supply during winter
④ Pressure sensor hose
⑤ Main PCB

Step 3

① Measure resistance across each valve terminal
→ Approx. - .09kΩ to 1kΩ

② When valve is operating, measure the voltage output of the main board at the valve after verifying good wire harness condition.
→ 120VAC at valve terminal only when valve is activated
→ Replace Main PCB if is missing



Causes

① Damaged harness
② Water supply valve fault
③ Frozen water supply during winter
④ Main PCB fault
⑤ Pressure sensor hose

Step 4

① Visually inspect every inch of the pressure sensor hose for any damage or small holes.
→ Hose could have a very small hole and might be hard to notice unless you do a thorough inspection
→ Replace pressure sensor hose if damaged

② Check to make sure terminal is properly connected to the water level sensor

Troubleshooting Errors *HC/HC1 / DC / BC2*

HC/HC1 - Heater error

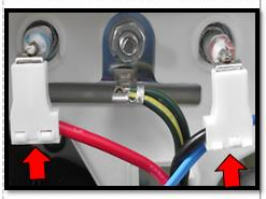
Check Point Heater/Heater wires/Thermistor/Main PCB

Causes

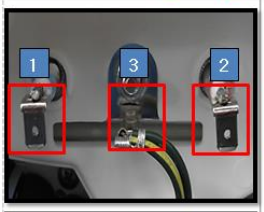
① Unit failed to raise water temperature
② Bad connection to heater
③ Defective heater
④ Damaged harness
⑤ Faulty Main PCB

Step 1

① Check the heater connections at the heater and at the Main PCB.



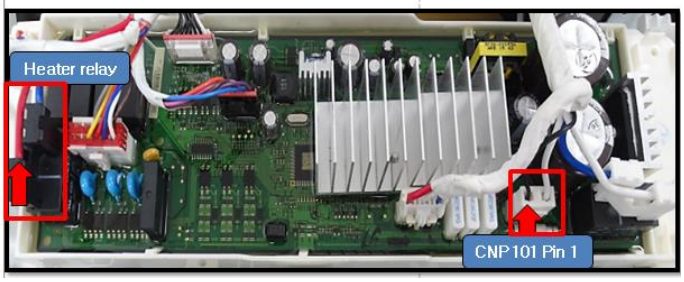
② Measure resistance of heater terminals with connectors removed
→ Pins 1 to 2 - Approx. 16.5Ω
→ Pins 1 to 3 - Open
→ Pins 2 to 3 - Open
→ Replace heater if a reading is out of range



③ Measure the voltage at heater when heater is on
→ 120VAC
→ If voltage is missing or abnormal proceed to next check

Step 2

① Check the Main PCB voltage output to the heater when heater is on
→ CN11 pin 2 to heater relay (red) - 120VAC
→ Replace harness if 120V is present at Main PCB and not heater
→ Replace Main PCB if output is out of range



DC Error - Door Error

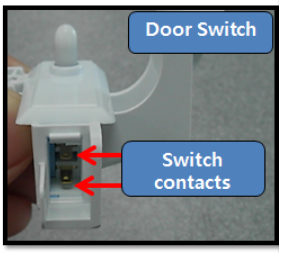
Check Point Door Switch/Switch Harness/Main PCB

Causes

① Defective door switch
② Faulty door lock switch
③ Damaged harness
④ Main PCB

Step 1

① Check the door switch continuity
→ Door open - no continuity
→ Door closed - continuity or less than 1Ω
② Check continuity to the door lock with door open
→ Pin 2 to 3 - no continuity
→ Replace door lock if door is open and measures continuity

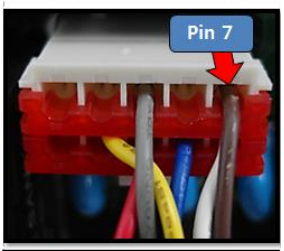


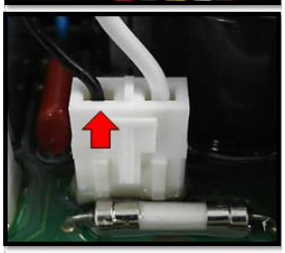
③ Check continuity to the door lock with door closed
→ Pin 2 to 3 - continuity
→ Replace door lock if door is closed and reads open

④ Check continuity of the door lock with door open
→ Pin 2 to 3 - no continuity
→ Replace door lock if door is open and it reads continuity

Step 2

① With door closed measure AC voltage at the Main PCB CNP401 pin 7(brown) and CNP 101(black)
→ Approx. 108V- door unlocked
→ When door locks drops to 0V
→ Check continuity of harness if door does not lock
→ Replace door lock if harness is in good condition and door does not lock





BC2 Error - Stuck button error

Check Point Sub PCB/Wire harness/Main PCB

Causes

① Stuck button
② Defective Sub PCB

Step 1

① Check if the control panel is responding properly

② Inspect the control panel for any damage that might be pressing down on a button

③ Visually inspect connector to make sure is connected properly to Sub PCB terminal

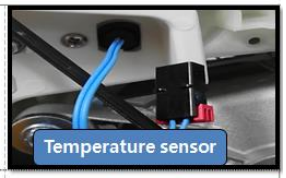
Troubleshooting Errors *TC1 / LC / UB*

TC1 Error - Temperature Sensor

Check Point Temperature sensor

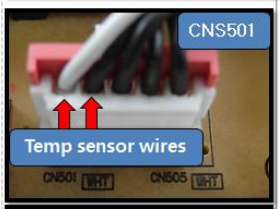
Causes

① Temperature sensor fault
② Temperature sensor disconnected
③ Damaged harness
④ Main PCB



Step 1

① Verify that temperature sensor is properly connected at the connector and on the Sub PCB CN501



② Measure the temperature sensor resistance at room temperature to verify sensor is not open or short.
→ Approx. 13KΩ at room temp (see temp sensor chart)
→ Replace if out of range

③ Remove the temperature sensor connector, and measure the voltage at the terminal coming from the Main PCB.
→ Approx. 5VDC
→ Check harness if out of range
→ Replace Main PCB if harness is not damaged

LC Error - Water Leakage Error

Check Point Pressure sensor hose

Causes

① Damaged water pressure sensor hose
② Pressure sensor hose not connected properly

Step 1

① Visually inspect every inch of the pressure sensor hose for any damage or small holes.
→ Hose could have a very small hole and might be hard to notice unless you do a thorough inspection
→ Replace pressure sensor hose if damaged

② Verify that pressure sensor hose is properly connected to the pressure sensor and to the washer tub.

UB Error - Unbalance Error

Check Point Laundry contents/improper installation

Causes

① Improperly loaded laundry
② Uneven basket
③ Defective damper

Step 1

① Check how the consumer is loading the washer
→ Instruct the customer to press pause, reposition the load or remove a few items and press start to resume wash cycle

② Make sure the unit is properly level and that floor where unit is installed is solid and even

③ Inspect dampers for any physical abnormalities

④ UB occurs when the hall sensor reads abnormal spinning of the tub and does not indicate a defective hall sensor.

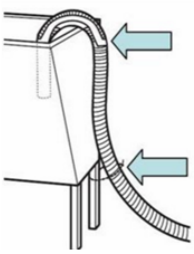
⑤ Find the source causing the unit to be unbalance: improperly loaded laundry, unit not leveled due to uneven floor, broken or bent leg

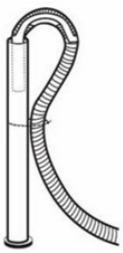
Causes

① Damaged water pressure sensor hose
② Pressure sensor hose not connected properly

Step 2

① Visually inspect the drain hose for proper installation
→ Make sure drain hose is properly installed and preventing water to siphon back into the washer





Troubleshooting Errors *OC / SUD*

OC Error - Overflow Error

Check Point Pressure sensor hose/ Water level sensor/harness

Causes

① Broken Water pressure sensor hose
② Faulty water pressure sensor
③ Stuck open water valve
④ Excess of suds

Step 1

① Visually inspect every inch of the pressure sensor hose for any damage or small holes.
→ Hose could have a very small hole and might be hard to notice unless you do a thorough inspection
→ Replace pressure sensor hose if damaged

② Check to make sure terminal is properly connected to the water level sensor

③ During the winter season, if the pressures sensor water hose freezes, it can also cause an OC Error.

④ OC overflow error occurs when water level detection does not work and water is supplied to unit continually.
→ If the pressure sensor, hose and harness checks out ok, replace the Main PCB

Step 2

① Measure resistance across each valve terminal
→ Approx. - .09kΩ to 1kΩ
→ Replace if valve is out of range

② A valve could be mechanically stuck open allowing water into the tub
→ If water is supplied to washer while washer is off, a valve is stuck open
→ Shut the water supply off and replace defective valve

③ Excess of suds can also cause a OC error code
→ Run unit trough rinse and if it has too much suds, run a clean cycle without detergent

SUD Error - Over suds error

Check Point Detergent use

Causes

① Too much detergent
② Wrong detergent type being used

Step 1

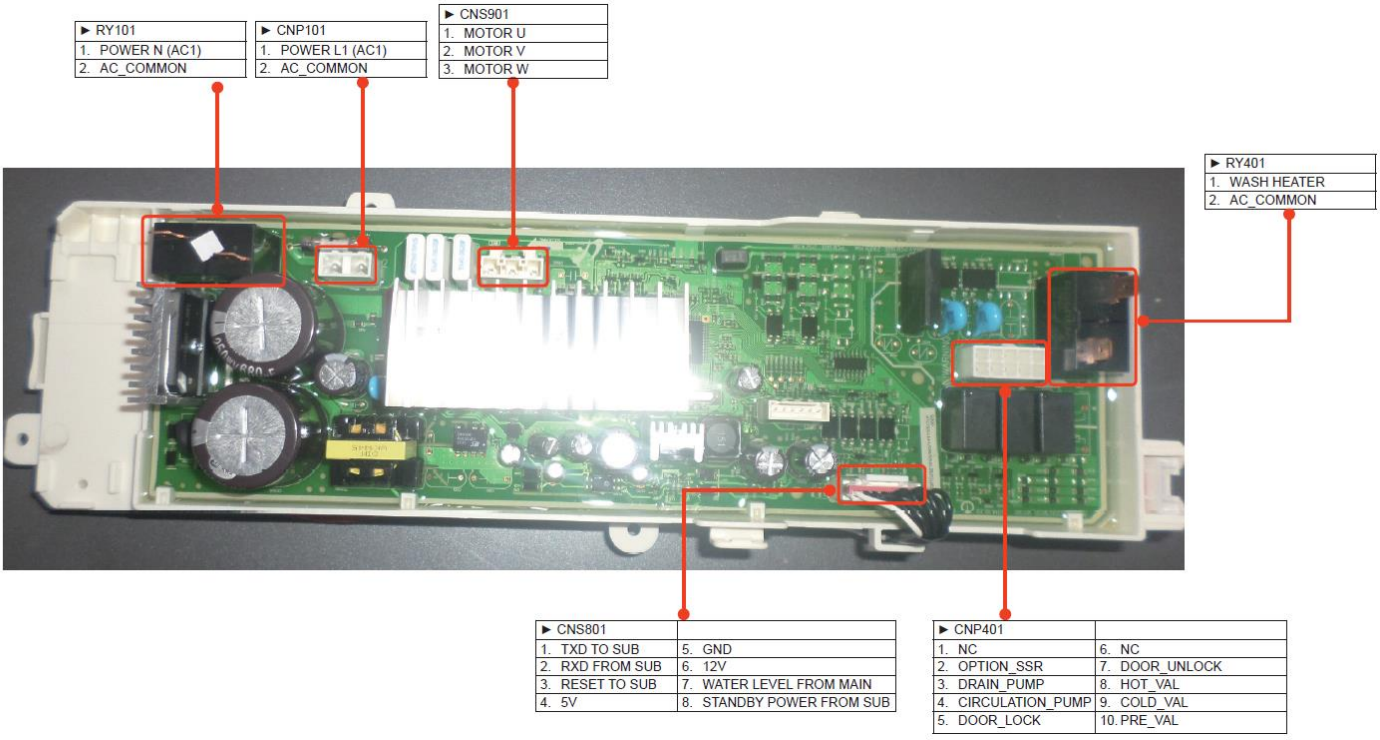
① Instruct customer to use the proper amount of detergent as indicated by the detergent manufacturer.

② Use detergent type as indicated by the owner's manual, HE (high efficiency) or regular detergent.

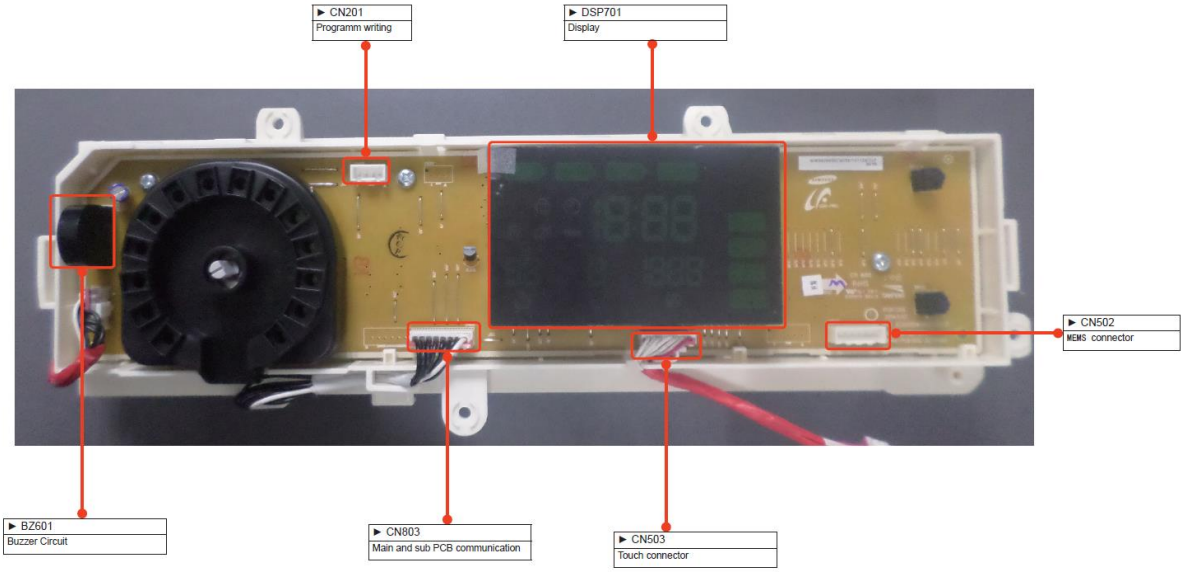
③ The only source of having too many suds on the washer is adding too much soap or using the wrong type of detergent.

④ SUD error also shows up on the self clean cycle due to left over soap from previous cycle, usually can be reset after soap dissolves.

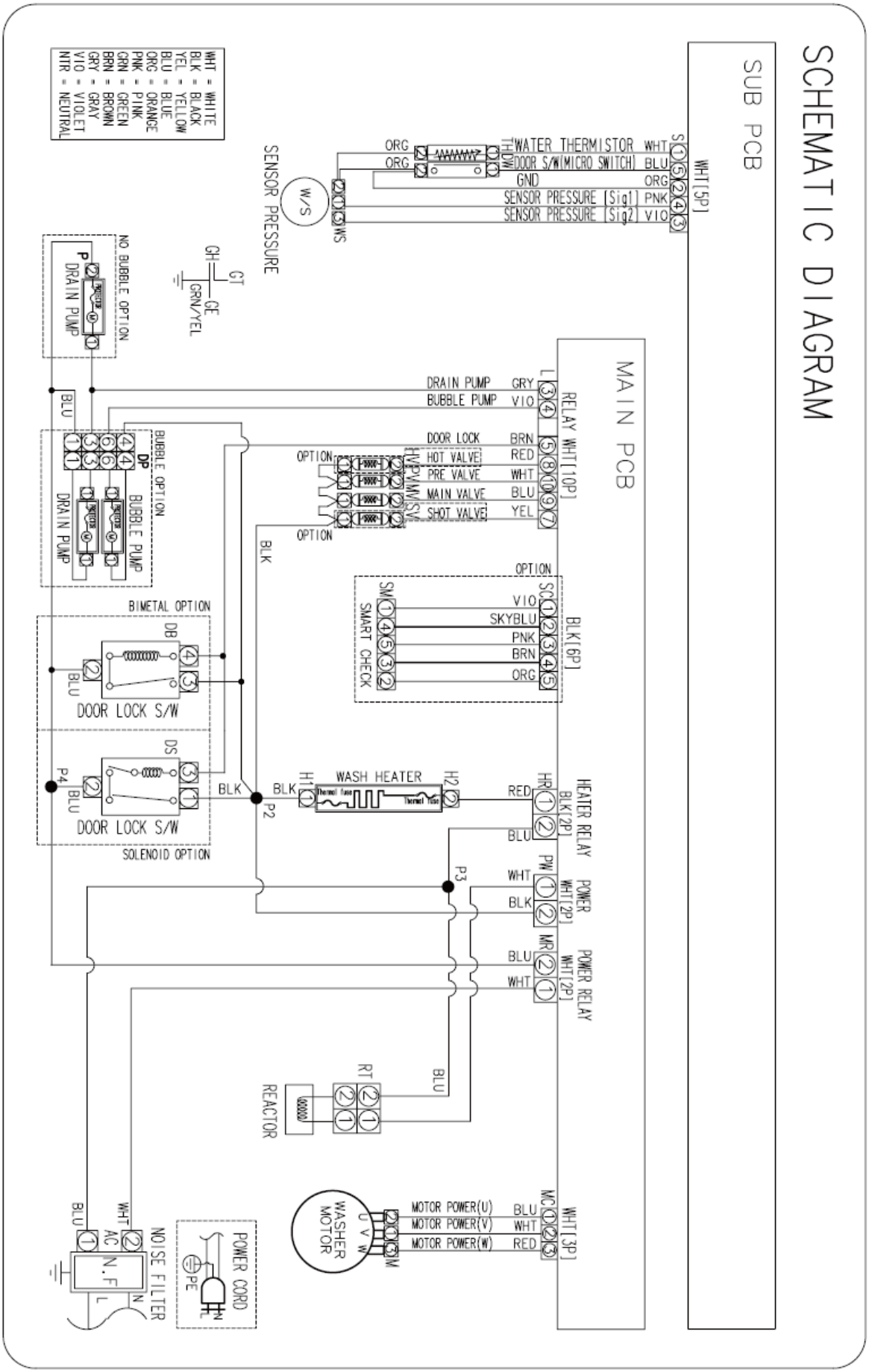
Main Board



Sub / Display board



Wire Diagram



Reference

PROBLEM	SOLUTION
Will not start.	• Make sure the door is firmly closed. • Make sure your washer is plugged in. • Make sure the water source faucets are open. • Make sure to press the Start/Pause Button to start your washer. • Make sure the Child Lock is not activated. See page 24. • Before your washer starts to fill, it will make a series of clicking noises to check the door lock and do a quick drain. • Check the fuse or reset the circuit breaker
Has no water or not enough water.	• Turn both faucets on fully. • Make sure the door is tightly closed. • Straighten the water inlet hoses. • Disconnect hoses and clean the screens. Hose filter screens may be clogged. • Open and close the door, then press the Start/Pause Button.
Has detergent remains in the automatic dispenser after the wash cycle is complete.	• Make sure your washer is running with sufficient water pressure. • Make sure the Detergent Selector dial is in the upper position when using granular detergent.
Vibrates or is too noisy.	• Make sure your washer is set on a level surface. If the surface is not level, adjust your washer feet to level the appliance. • Make sure that the shipping bolts are removed. • Make sure your washer is not touching any other object. • Make sure the laundry load is balanced.
Stops	• Plug the power cord into a live electrical outlet. • Check the fuse or reset the circuit breaker. • Close the door and press the Start/Pause Button to start your washer. For your safety, your washer will not tumble or spin unless the door is closed. • Before your washer starts to fill, it will make a series of clicking noises to check the door lock and do a quick drain. • There may be a pause or soak period in the cycle. Wait and it may start. • Check the screens on the inlet hoses at the faucets for obstructions. Clean the screens periodically.
temperature water.	• Make sure the temperature selection is correct. • Make sure the hoses are connected to the correct faucets. Flush water lines. • Check the water heater. It should be set to deliver a minimum 120 °F (49 °C) hot water at the tap. Also check the water heater capacity and recovery rate. • Disconnect the hoses and clean the screens. The hose filter screens may be plugged. • As your washer is filling, the water temperature may change as the automatic temperature control feature checks incoming water temperature. This is normal. • While your washer is filling, you may notice just hot and/or just cold water going through the dispenser when you have selected cold or warm wash temperatures. This is a normal function of the automatic temperature control feature as your washer determines the temperature of the water.
Door locked or will not open.	• Press the Start/Pause Button to stop your washer. • Your washer door will remain locked during the heating portion of the Sanitize Cycle. • It may take a few moments for the door lock mechanism to disengage.
Does not drain and/or spin.	• Check the fuse or reset the circuit breaker. • Straighten the drain hoses. Eliminate kinked hoses. If there is a drain restriction, call for service. • Close the door and press the Start/Pause Button. For your safety, your washer will not tumble or spin unless the door is closed. • Make sure the debris filter is not clogged.
Load is too wet at the end of the cycle.	• Use the High or Extra High spin speed. • Use high efficiency detergent to reduce over-sudsing. • The load is too small. Very small loads (one or two items) may become unbalanced and not spin out completely.
Leaks water.	• Make sure the door is firmly closed. • Make sure all hose connections are tight. • Make sure the end of the drain hose is correctly inserted and secured to the drainage system. • Avoid overloading. • Use high efficiency detergent to prevent over-sudsing.
Has excessive suds.	• Use high efficiency detergent to prevent over-sudsing. • Reduce the detergent amount for soft water, small or lightly soiled loads. • Non-HE detergent is NOT recommended.
Has an odor.	• Excessive suds collect in nooks and crannies and can cause foul odors. • Run cleansing cycles to sanitize the machine periodically. (Sanitize Cycle or Self Clean+) • Clean the door seal (Diaphragm). • Dry the interior of your washer after the total cycle has finished.